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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/602,486

06/24/2003

James W. Horwitz

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1103

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7590

06/21/2004

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EXAMINER

WONG, ERIC K

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 06/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/602,486	Applicant(s) HORWITZ, JAMES W.	
	Examiner Eric Wong	Art Unit 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to ^{application} communication(s) filed on 24 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent Number 5,757,993 to Abe.

Abe discloses in figure 2, an optical system comprising a wavelength division module having at least one lens (GRIN) optically coupled to at least one diffraction grating (the GRIN lens is a graded refractive index lens); and at least one optical fiber optically coupled to said wavelength division module (24), said at least one optical fiber including an end portion, in close proximity to said wavelength division module, having an expanded core diameter portion (17).

As to claim 2, the fibers inherently have an input and output.

As to claim 5, Abe discloses in column 3, line 43 an expanded core diameter of 10 micrometers.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 3, 6-8 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe as applied to claim 1 above, and further in view of applicant's disclose of prior art.

Abe discloses an optical system with an input optical fiber separated from an end of an output optical fiber (figures 4 and 5), but fails to explicitly disclose a defined "fill factor" for a wavelength of an optical signal propagating along at last one of said fibers.

Applicant discloses in paragraphs 5 and 8, the equation and definition of said "fill factor".

It would have been obvious to one having ordinary skill in the art at the time the invention was made to recognize that Abe's optical system would exhibit a defined "fill factor", since it is made with an input fiber set at a distance from the output fiber.


As to claims 7-8, figures 2-3 show a single mode optical fiber with tapered core regions having a first and second diameter.

As to claims 12-13, Abe discloses in column 1, lines 43-45, the use of the optical system in a WDM device.

5. Claims 4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe as applied to claim 1 above, and further in view of an optimal value.

Abe discloses an expanded core diameter, but fails to explicitly disclose one that is in the range as claimed. It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the size of the expanded core, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

 6. Claims 14,^{15,}_^ and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe as applied to claim 6 above, and further in view of common knowledge in the art.

Abe discloses an input and an output tapered optical fiber spaced at a distance with a lens/grating inbetween and the need to move the optical fibers for alignment purposes (column 4, lines 2-14).

Mechanical mounts or similar devices are well known in the art to be used for alignment and placement of optical fibers and optical components.

It would have been obvious to one having ordinary skill at the time the invention was made to use a mount or similar device in order to move the optical fibers of Abe in order to better align the optical fibers to reduce coupling losses and spherical aberrations.

As to claim 15, a TEC (thermally expanded core) is disclosed in column 3, line 21).

7. Claims 10, 11, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe as applied to claim 6 and 14 above, in view of applicant's disclosure of prior art and further in view of determination of an optimal value.

Abe discloses an optical system with an input optical fiber separated from an end of an output optical fiber (figures 4 and 5), but fails to explicitly disclose a defined "fill factor" for a wavelength of an optical signal propagating along at last one of said fibers with the values as claimed.

Applicant discloses in paragraphs 5 and 8, the equation and definition of said "fill factor". It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the size of the expanded core, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Conclusion

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8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. United States Patent Number 5,926,298 to Li for an optical multiplexer/demultiplexer with an expanded core portion.

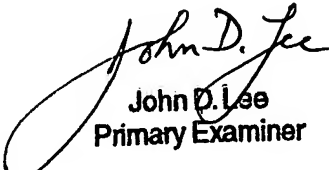
b. United States Patent Number 6,542,665 to Reed et al for a GRIN lens that has an expanded core.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Wong whose telephone number is 571-272-2363. The examiner can normally be reached on Monday through Friday, 830AM - 430PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on 571-272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EW


John D. Lee
Primary Examiner